ENTERED

RAW SEQUENCE LISTING   DATE: 08/18/2003
PATENT APPLICATION: US/09/994,425   TIME: 13:42:45

Input Set : **N:\Crf3\RULE60\09994425.raw.txt**
Output Set: **N:\CRF4\08182003\I994425.raw**

SEQUENCE LISTING

```
 1  (1) GENERAL INFORMATION:
 2      (i) APPLICANT: Harry C. Chiou and Dennis J. Carlo
 3     (ii) TITLE OF INVENTION: TARGETED DELIVERY OF GENES ENCODING
 4                              INTERFERON
 5    (iii) NUMBER OF SEQUENCES: 13
 6     (iv) CORRESPONDENCE ADDRESS:
 7          (A) ADDRESSEE: LAHIVE & COCKFIELD, LLP
 8          (B) STREET: 60 STATE STREET, SUITE 510
 9          (C) CITY: BOSTON
10          (D) STATE: MASSACHUSETTS
11          (E) COUNTRY: USA
12          (F) ZIP: 02109-1875
13      (v) COMPUTER READABLE FORM:
14          (A) MEDIUM TYPE: Floppy disk
15          (B) COMPUTER: IBM PC compatible
16          (C) OPERATING SYSTEM: PC-DOS/MS-DOS
17          (E) SOFTWARE: PatentIn Release #1.0, Version #1.25
18     (vi) CURRENT APPLICATION DATA:
```
C--> 19   **(A) APPLICATION NUMBER: US/09/994,425**
C--> 20   **(B) FILING DATE: 26-Nov-2001**
```
21          (C) CLASSIFICATION:
22    (vii) PRIOR APPLICATION DATA:
23          (A) APPLICATION NUMBER: US/09/379,434
24          (B) FILING DATE: 23-Aug-1999
26          (A) APPLICATION NUMBER: 08/819,238
27          (B) FILING DATE:
28   (viii) ATTORNEY/AGENT INFORMATION:

30          (A) REGISTRATION NUMBER: 36,872
31          (C) REFERENCE/DOCKET NUMBER: TTI-143CPPC
32     (ix) TELECOMMUNICATION INFORMATION:
33          (A) TELEPHONE: (617)227-7400
34          (B) TELEFAX: (617)227-5941
35 (2) INFORMATION FOR SEQ ID NO: 1:
36      (i) SEQUENCE CHARACTERISTICS:
37          (A) LENGTH: 166 amino acids
38          (B) TYPE: amino acid
39          (D) TOPOLOGY: linear
40     (ii) MOLECULE TYPE: peptide
41      (v) FRAGMENT TYPE: internal
42     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:
43          Cys Asp Leu Pro Gln Thr His Ser Leu Gly Ser Arg Arg Thr Leu Met
```

```
RAW SEQUENCE LISTING               DATE: 08/18/2003
PATENT APPLICATION:  US/09/994,425    TIME: 13:42:45

     Input Set : N:\Crf3\RULE60\09994425.raw.txt
     Output Set: N:\CRF4\08182003\I994425.raw
```

```
  44            1          5                  10                15
  45        Leu Leu Ala Gln Met Arg Arg Ile Ser Leu Phe Ser Cys Leu Lys Asp
  46                      20              25              30
W--> 47     Arg His Asp Phe Gly Phe Pro Gln Glu Glu Phe Xaa Gly Asn Gln Phe Gln
  48                      35              40              45
  49        Lys Ala Glu Thr Ile Pro Val Leu His Glu Met Ile Gly Gln Ile Phe
  50        50              55              60              65
  51        Asn Leu Phe Ser Thr Lys Asp Ser Ser Ala Ala Trp Asp Glu Thr Leu
  52                      70              75              80
  53        Leu Asp Lys Phe Tyr Thr Glu Leu Tyr Gln Gln Leu Asn Asp Leu Glu
  54                      85              90              95
  55        Ala Cys Val Ile Gln Gly Val Gly Val Thr Glu Thr Pro Leu Met Lys
  56                      100             105             110
  57        Glu Asp Ser Ile Leu Ala Val Arg Lys Tyr Phe Gln Arg Ile Thr Leu
  58                      115             120             125
  59        Tyr Leu Lys Glu Lys Lys Tyr Ser Pro Cys Ala Trp Glu Val Val Arg
  60        130             135             140             145
  61        Ala Glu Ile Met Arg Ser Phe Ser Leu Ser Thr Asn Leu Gln Glu Ser
  62                      150             155             160
  63        Leu Arg Ser Lys Glu
  64                      165
  66  (2) INFORMATION FOR SEQ ID NO: 2:
  67         (i) SEQUENCE CHARACTERISTICS:
  68            (A) LENGTH: 168 amino acids
  69            (B) TYPE: amino acid
  70            (D) TOPOLOGY: linear
  71        (ii) MOLECULE TYPE: peptide
  72        (v) FRAGMENT TYPE: internal
  73        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:
  74            Cys Asp Leu Pro Glu Thr His Ser Leu Asp Asn Arg Arg Thr Leu Met
  75            1          5                  10                15
  76            Leu Leu Ala Gln Met Ser Arg Ile Ser Pro Ser Ser Cys Leu Met Asp
  77                      20              25              30
  78            Arg His Asp Phe Gly Phe Pro Gln Glu Glu Phe Asp Gly Asn Gln Phe
  79                      35              40              45
  80            Gln Lys Ala Pro Ala Ile Ser Val Leu His Glu Leu Ile Gln Gln Ile
  81            50              55              60
```

```
  84            Leu Leu Asp Lys Phe Cys Thr Glu Leu Tyr Gln Gln Leu Asn Asp Leu
  85                      85              90              95
  86            Glu Ala Cys Val Met Gln Glu Glu Arg Val Gly Glu Thr Pro Leu Met
  87                      100             105             110
  88            Asn Ala Asp Ser Ile Leu Ala Val Lys Lys Tyr Phe Arg Arg Ile Thr
  89            115             120             125
  90            Leu Tyr Leu Thr Glu Lys Lys Tyr Ser Pro Cys Ala Trp Glu Val Val
  91            130             135             140
  92            Arg Ala Gln Ile Met Arg Ser Leu Ser Leu Ser Thr Asn Leu Gln Glu
  93            145             150             155             160
```

RAW SEQUENCE LISTING   DATE: 08/18/2003
PATENT APPLICATION: US/09/994,425   TIME: 13:42:45

Input Set : **N:\Crf3\RULE60\09994425.raw.txt**
Output Set: **N:\CRF4\08182003\I994425.raw**

```
94           Arg Leu Arg Arg Lys Glu
95                                    105
97  (2) INFORMATION FOR SEQ ID NO: 3:
98       (i) SEQUENCE CHARACTERISTICS:
99           (A) LENGTH: 6 amino acids
100          (B) TYPE: amino acid
101          (C) TOPOLOGY: linear
102      (ii) MOLECULE TYPE: peptide
103      (v) FRAGMENT TYPE: internal
104      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:
105          Arg Gln Lys Phe Ser Ser
106          1                      5
108 (2) INFORMATION FOR SEQ ID NO: 4:
109      (i) SEQUENCE CHARACTERISTICS:
110          (A) LENGTH: 6 amino acids
111          (B) TYPE: amino acid
112          (C) TOPOLOGY: linear
113      (ii) MOLECULE TYPE: peptide
114      (v) FRAGMENT TYPE: internal
115      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:
116          Arg Gln Thr Phe Ser Ser
117          1                      5
118 (2) INFORMATION FOR SEQ ID NO: 5:
119      (i) SEQUENCE CHARACTERISTICS:
120          (A) LENGTH: 6 amino acids
121          (B) TYPE: amino acid
122          (C) TOPOLOGY: linear
123      (ii) MOLECULE TYPE: peptide
124      (v) FRAGMENT TYPE: internal
125      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:
126          Arg Arg Lys Phe Ser Ser
127          1                      5
128 (2) INFORMATION FOR SEQ ID NO: 6:
129      (i) SEQUENCE CHARACTERISTICS:
130          (A) LENGTH: 6 amino acids
131          (B) TYPE: amino acid
132          (C) TOPOLOGY: linear

             (v) FRAGMENT TYPE: internal
137      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:
138          Lys Gln Lys Phe Ser Ser
139          1                      5
140 (2) INFORMATION FOR SEQ ID NO: 7:
141      (i) SEQUENCE CHARACTERISTICS:
142          (A) LENGTH: 6 amino acids
143          (B) TYPE: amino acid
144          (C) TOPOLOGY: linear
145      (ii) MOLECULE TYPE: peptide
146      (v) FRAGMENT TYPE: internal
```

RAW SEQUENCE LISTING
PATENT APPLICATION: **US/09/994,425**

DATE: 08/18/2003
TIME: 13:42:45

Input Set : **N:\Crf3\RULE60\09994425.raw.txt**
Output Set: **N:\CRF4\08182003\I994425.raw**

```
148        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:
149             Lys Arg Lys Phe Ser Ser
150             1                 5
152  (2) INFORMATION FOR SEQ ID NO: 8:
153        (i) SEQUENCE CHARACTERISTICS:
154             (A) LENGTH: 6 amino acids
155             (B) TYPE: amino acid
156             (D) TOPOLOGY: linear
157        (ii) MOLECULE TYPE: peptide
158        (v) FRAGMENT TYPE: internal
159        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:
160             Arg Arg Thr Phe Ser Ser
161             1                 5
162  (2) INFORMATION FOR SEQ ID NO: 9:
164        (i) SEQUENCE CHARACTERISTICS:
165             (A) LENGTH: 6 amino acids
166             (B) TYPE: amino acid
167             (D) TOPOLOGY: linear
168        (ii) MOLECULE TYPE: peptide
169        (v) FRAGMENT TYPE: internal
170        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:
171             Lys Arg Thr Phe Ser Ser
172             1                 5
174  (2) INFORMATION FOR SEQ ID NO: 10:
175        (i) SEQUENCE CHARACTERISTICS:
176             (A) LENGTH: 6 amino acids
177             (B) TYPE: amino acid
178             (D) TOPOLOGY: linear
179        (ii) MOLECULE TYPE: peptide
180        (v) FRAGMENT TYPE: internal
181        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:
182             Arg His Lys Phe Ser Ser
183             1                 5
184  (2) INFORMATION FOR SEQ ID NO: 11:
185        (i) SEQUENCE CHARACTERISTICS:
186             (A) LENGTH: 6 amino acids
187             (B) TYPE: amino acid

                  (ii) MOLECULE TYPE: peptide
191        (v) FRAGMENT TYPE: internal
192        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:
193             Arg His Lys Phe Ser Ser
194             1                 5
196  (2) INFORMATION FOR SEQ ID NO: 12:
197        (i) SEQUENCE CHARACTERISTICS:
198             (A) LENGTH: 6 amino acids
199             (B) TYPE: amino acid
200             (D) TOPOLOGY: linear
201        (ii) MOLECULE TYPE: peptide
```

RAW SEQUENCE LISTING
PATENT APPLICATION: **US/09/994,425**

DATE: 08/18/2003
TIME: 13:42:45

Input Set : **N:\Crf3\RULE60\09994425.raw.txt**
Output Set: **N:\CRF4\08182003\I994425.raw**

```
202        (v) FRAGMENT TYPE: internal
203        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:
204             Arg Lys Thr Phe Ser Ser
205             1               5
207  (2) INFORMATION FOR SEQ ID NO: 13:
208        (i) SEQUENCE CHARACTERISTICS:
209             (A) LENGTH: 166 amino acids
210             (B) TYPE: amino acid
211             (D) TOPOLOGY: linear
212        (ii) MOLECULE TYPE: peptide
213        (v) FRAGMENT TYPE: internal
214        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:
215             Cys Asp Leu Pro Gln Thr His Ser Leu Gly Ser Arg Arg Thr Leu Met
216             1               5                   10                  15
217             Leu Leu Ala Gln Met Arg Arg Ile Ser Leu Phe Ser Cys Leu Lys Asp
218                             20                  25                  30
```

W--> **219   Arg His Asp Phe Gly Phe Pro Gln Glu Glu Phe Xaa Gly Asn Gln Phe Gln**

```
220                             35                  40                  45
221             Lys Ala Glu Thr Ile Pro Val Leu His Glu Met Ile Gln Gln Ile Phe
222             50                  55                  60                  65
223             Asn Leu Phe Ser Thr Lys Asp Ser Ser Ala Ala Trp Asp Glu Thr Leu
224                             70                  75                  80
225             Leu Asp Lys Phe Tyr Thr Glu Leu Tyr Gln Gln Leu Asn Asp Leu Glu
226                             85                  90                  95
227             Ala Cys Val Ile Gln Gly Val Gly Val Thr Glu Thr Pro Leu Met Lys
228                             100                 105                 110
229             Glu Asp Ser Ile Leu Ala Val Lys Lys Tyr Phe Arg Arg Ile Thr Leu
230             115                 120                 125
231             Tyr Leu Lys Glu Lys Lys Tyr Ser Pro Cys Ala Trp Glu Val Val Arg
232             130                 135                 140                 145
233             Ala Glu Ile Met Arg Ser Phe Ser Leu Ser Thr Asn Leu Gln Glu Ser
234                             150                 155                 160
235             Leu Arg Ser Lys Glu
236                             165
```

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 08/18/2003
PATENT APPLICATION: **US/09/994,425**   TIME: 13:42:46

Input Set : **N:\Crf3\RULE60\09994425.raw.txt**
Output Set: **N:\CRF4\08182003\I994425.raw**

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; Xaa Pos.44
Seq#:13; Xaa Pos.44

VERIFICATION SUMMARY DATE: 08/18/2003
PATENT APPLICATION: **US/09/994,425** TIME: 13:42:46

Input Set : **N:\Crf3\RULE60\09994425.raw.txt**
Output Set: **N:\CRF4\08182003\I994425.raw**

L:19 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:20 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]
L:47 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:32
L:219 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13 after pos.:32

STATISTICS SUMMARY   DATE: 08/18/2003
PATENT APPLICATION: **US/09/994,425**   TIME: 13:42:46

Input Set : **N:\Crf3\RULE60\09994425.raw.txt**
Output Set: **N:\CRF4\08182003\I994425.raw**

Application Serial Number: US/09/994,425
Alpha or Numeric or Xml: Alpha
Application Class:
Application File Date: 11-26-2001
Art Unit: OIPE
Software Application: PatentIN1.0
Total Number of Sequences: 13
Total Nucleotides: 0
Total Amino Acids: 558
Number of Errors: 0
Number of Warnings: 2
Number of Corrections: 2

MESSAGE SUMMARY

220 C: 2 (keyword misspelled or invalid format)
341 W: 2 ((46) "n" or "Xaa" used)